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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,311	04/28/2006	Akira Takaragi	3273-0223PUS1	4952

2292 7590 05/26/2009  
BIRCH STEWART KOLASCH & BIRCH  
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FALLS CHURCH, VA 22040-0747

EXAMINER
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LISTVOYB, GREGORY

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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05/26/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/577,311	TAKARAGI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	GREGORY LISTVOYB	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                        |                                                                                  |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                          |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application                |
| Paper No(s)/Mail Date <u>3/11/2009</u> .                                               | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 2/09/2007; 4/28/2006</u> . |

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 13-15 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected high molecular weight polymer and a dielectric film and method of its production, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/01/2009.

Applicant's election with traverse of claims 1-12 and species of claim 8 in the reply filed on 5/01/2009 is acknowledged. The traversal is on the ground(s) that JP 2001-332543, since does not anticipate the claimed invention of claim 1, because it does not teach a prepolymer. This is not found persuasive because the film from the polymer of JP 2001-332543 is obtained from the solution. Therefore, it can be dissolved in an organic solvent. The final cross-linking of the above polymer takes place in the solid form, after casting the solution to the substrate. Therefore, polymer of JP 2001-332543 can be considered as prepolymer in relation to a fully cured structure, obtained in the film form.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 112***

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-7 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polyamide based on adamantane and aromatic fragments, does not reasonably provide enablement for any other polyimide. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ 2d 1400 (CA FC 1988).

*Wands* states at page 1404, the court set forth eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApl 1986) at 547 the court recited eight factors:

(1) The nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented;

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(7) the presence or absence of working example and (8) the quantity of experimentation necessary.

The nature of the invention and breadth of claims

The claimed invention is a prepolymer, capable to form a porous structure, (see Claim 1). This product is enabled only for one kind of an aromatic polyamides, based on aromatic and adamantanes (See Examples).

Therefore, the scope of the Claims ("A prepolymer", meaning any prepolymer) is much broader than one disclosed in the Specification.

The state of the prior art

In the prior art to US 2002/0034873 as discussed below, discloses a prepolymer, made from adamantane-based acids and aromatic tetramines. Therefore, US 2002/0034873 reference represents only a limited teaching of prepolymers, forming porous structure and having excellent dielectric properties

The presence or absence of working example:

The Applicant presents working Examples based on only one type of polyimide, one comprising adamantane and aromatic moieties. There is no working Examples, related to any other prepolymer type.

The quantity of experimentation necessary.

2. It is concluded that it would have require undue experimentation for one having ordinary skill in the art to practice the claimed invention to find appropriate step to expand the applicant's teaching to any other type of prepolymer besides one based on adamantane and aromatics. In re Wands, 858, F.2d at 737, 8 USPQ 2d 1400, 1404 (Fed Cir. 1988).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

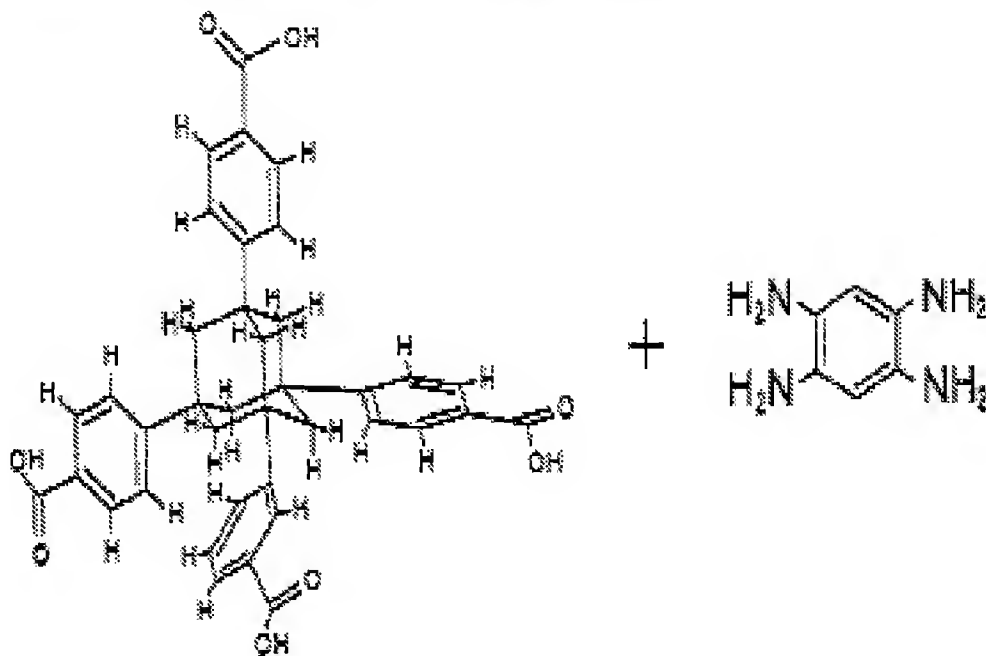
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-12 rejected under 35 U.S.C. 102(b) as being anticipated by Aoi (US 2002/0034873).

Aoi teaches a polymer, obtained by the following reaction (see Figure 6A):

FIG. 6A

1,3,5,7-tetrakis(4-carboxylatophenyl)adamantane



The above structure fully meets limitations of claims 1, 3-11.

Regarding Claim 12-14, Aoi reaches a solution, polymer and a dielectric film based on the above monomers (see Example 1, Abstract and Fig. 7).

***Claim Rejections - 35 USC § 102/103***

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Claim 2 rejected under 35 U.S.C. 102(b) as being anticipated or, alternatively, under 35 U.S.C. 103(a) as being obvious over Aoi.

Aoi teaches a polymer, which is product of reaction of tetracarboxylic acid adamantane and tetraamine aromatic monomers (see Fig 6A).

Aoi does not measure molecular weight of his polymer

However, as it shown on Fig 3 and 7, molecular weight of the Aoi's polymer is within the range of 200 to 100000.

Alternatively, the position is taken that since Aoi and Application use the monomer of the same nature (compare monomers of Fig 6A of Aoi and structure (16) on page 78 of Specification) and reaction conditions (see line 105 of Aoi and Example 4 of Specification) are analogous, the position is taken that the molecular weight of the polymer are expected to be in the same range.

Note that lower limits of the molecular weight claimed corresponds with one of unreacted monomers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY LISTVOYB whose telephone number is (571)272-6105. The examiner can normally be reached on 10am-7pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/  
Supervisory Patent Examiner, Art Unit 1796  
GL

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